

REMARKS

This is intended as a full and complete response to the Office Action dated June 17, 2004, having a shortened statutory period for response set to expire on September 17, 2004. Please reconsider the claims pending in the application for reasons discussed below.

I. Rejection of claims 1 and 4 under 35 USC § 102

Claims 1 and 4 stand rejected under 35 USC § 102(b) as being anticipated by Gutnik et al. (U.S. Patent Publication No. 2002/0049936 A1) (Gutnik). Applicant respectfully traverses the rejection.

The Examiner's attention is directed to the fact that Gutnik does not qualify as prior art. Gutnik was published on April 25, 2002. Gutnik's filing date was July 31, 2001. Although Gutnik claims priority to a provisional application that was filed on July 31, 2000, the Examiner is not asserting a rejection based on the provisional application. Thus, the Applicants assert that the Examiner improperly cited the published patent application of Gutnik as prior art. Applicants respectfully request that the rejection of claims 1 and 4 be withdrawn.

II. Rejection of claim 8 under 35 USC § 103

Claim 8 stands rejected under 35 USC § 103(a) as being obvious over Dalmia (U.S. Patent No. 6,307,413, issued October 23, 2001) (Dalmia). Applicants respectfully disagree.

Dalmia discloses a reference-free clock generator and data recovery PLL. Also disclosed is a circuit 100 comprising "a divider block (or circuit) 101, a phase detector (PD) block (or circuit) 102 and a frequency detector (FD) block (or circuit) 104... The circuit 100 may further comprise a gate 106, a charge pump block (or circuit) 108 and a VCO block (or circuit) 110."

The Examiner concedes that Dalmia fails to disclose a "plurality of inputs". The Examiner's attention is directed to the fact that Dalmia fails to disclose "a plurality of

phase detectors” and “adding said detected phases to form a sum”, as claimed by Applicants. Specifically, Applicants’ independent claim 8 positively recites:

8. An apparatus for performing timing recovery of a signal received at a plurality of inputs, said apparatus comprising:

a plurality of phase detectors each detecting a phase of said signal at a different input by comparing the input signal to a timing signal from a numerically controlled oscillator (NCO);

a summer for adding said detected phases to form a sum;

a level shifter for adjusting the sum to within an input range of said NCO;

a loop filter for filtering the adjusted sum; and

the NCO for generating a timing signal in response to the filtered sum. (emphasis added)

Applicants’ invention is directed to a method and apparatus for performing joint timing recovery in a digital receiver using multiple input signals. In one embodiment, the apparatus comprises a plurality of phase detectors, a summer, a level shifter, a loop filter and a numerically controlled oscillator (NCO). Each of the phase detectors produces a phase signal by comparing a timing signal produced by the NCO with each of the input signals. The phase signals are then summed and the level shifter adjusts the summed value to compensate for the number of signals used to form the sum, i.e., the summed value is adjusted to be within the input range of the NCO.

In contrast, Dalmia discloses a phase detector 102 and a frequency detector 104. The output of the phase detector and the output of the frequency detector may be summed by gate 106. Dalmia is devoid of the teaching or suggestion to include a plurality of phase detectors. Dalmia is also devoid of the teaching or suggestion to sum an output of a plurality of phase detectors. Therefore, Dalmia does not render Applicants’ claim 8 obvious. As such, Applicants assert that claim 8 is patentable over the cited prior art.

III. Allowable Subject Matter

Claims 2, 3, 5-7 and 9-11 were objected to by the Examiner as being dependent upon a rejected base claim. Applicants thank the Examiner for indicating the conditional allowability of such subject matter, but have hereinabove provided arguments refuting

the rejections of the independent claims. Thus, no changes to the dependent claims are made at this time. Withdrawal of the objection is respectfully requested.

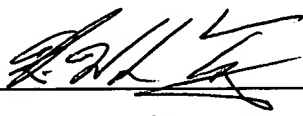
CONCLUSION

Thus, the Applicants submit that all of these claims now fully satisfy the requirements of 35 U.S.C. §102 and 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. or Mr. Thomas Bethea, Jr., Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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Date


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